A Brief Overview of European Activities

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Background

- Escalating delays in Europe during the late 80's
  - Establishment of the Central Flow Management Unit (CFMU)
  - Centralised Flight Plan processing (IFPS)
- Multitude of disparate National systems and lack of interoperability
  - ECAC Strategies of the 90's (separate En-route & Airport strategies)
  - Creation of the European ATC Harmonisation & Integration Programme (EATCHIP)
  - Phase 1: Inventory of existing situation
  - Phase 2: Preparation of a work programme
  - Phase 3 (bottom-up approach): Harmonisation of European ATM systems to achieve common levels of performance. Target date: 1998
  - Phase 4 (top-down approach): Integration of European ATM systems in the period 2000 - 2015 and beyond (ATM 2000+)

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The European Context

- Planning the Future in a Changing Context
  - Continued traffic growth -- a doubling by 2015 -- with present operational concept and levels of integration/interoperability unable to accommodate such traffic levels
  - Deregulation, increased competition and cost consciousness of Airlines
  - Privatisation of ATM Service Providers
  - Separation of regulatory and service provider functions
  - Institutional changes: Revised EUROCONTROL Convention
  - International Context: ICAO CNS/ATM, FAA initiatives
- A Structured, Performance Driven Approach towards Change
  - Need for integration: scope now gate-to-gate instead of just en-route
  - Top-down: evolutionary change focused towards a challenging but realistic target (2015)
  - Concept and Strategy driven
  - Proposed changes underpinned by a rationale and cost-benefit analysis
  - Strong involvement of the Aviation Community to reach broad consensus

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The ATM 2000+ Strategy

- Replacement for the ECAC Strategies of the 90's
  - Scope 2000 - 2015 and beyond
- A political vehicle for implementing the Target Concept in Europe
  - Currently being developed by a high level ATM 2000+ Strategy Board
  - Approval by the ECAC Transport Ministers sought in 1999
- Incorporates inputs from the aviation community
  - ATM 2000+ Workshop in Luxembourg, 2-6 February 1998
  - 200+ delegates - active participation in 6 working groups, one of them being...
  - Integration & Information subgroup
    - Participants discuss notion of the concept of "SystemWide Information Management" (SWIM)
    - Identification of the need for short term actions and a long term strategy in Europe

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Structured, Performance Driven Approach

- Level 1: Overall Mission of the future ATM system
- Level 2: Objectives (high level objectives and detailed objectives)
- Level 3: Safety and Performance Targets (qualitative & quantitative)
- Level 4: A 2015 Target Concept, consisting of Concept Elements
- Level 5: A 2000 - 2015 Road Map of Operational Improvements
- Level 6: Operational Requirements, Integration and Information Sharing
- Level 7: Technical, Procedural and Human Resource Enablers

Traceability between levels
=
Rationale and justification for change

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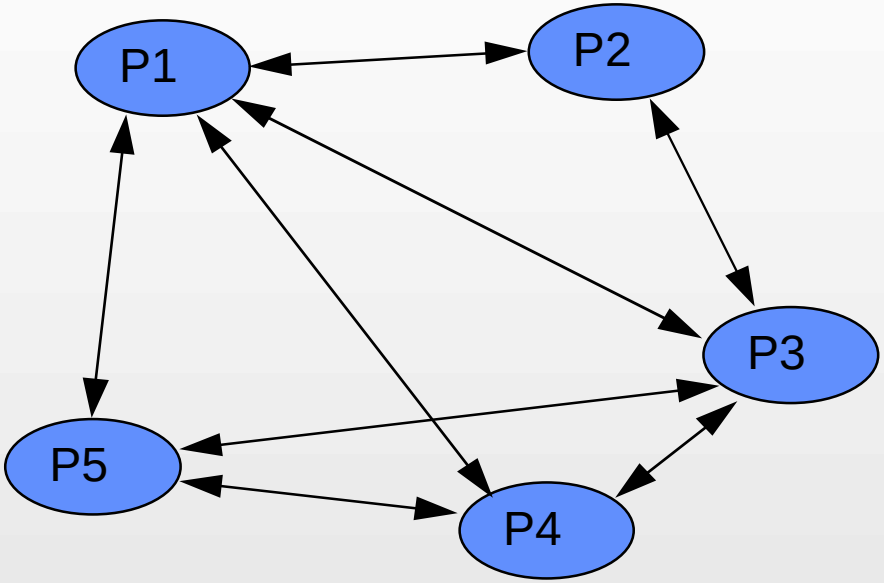
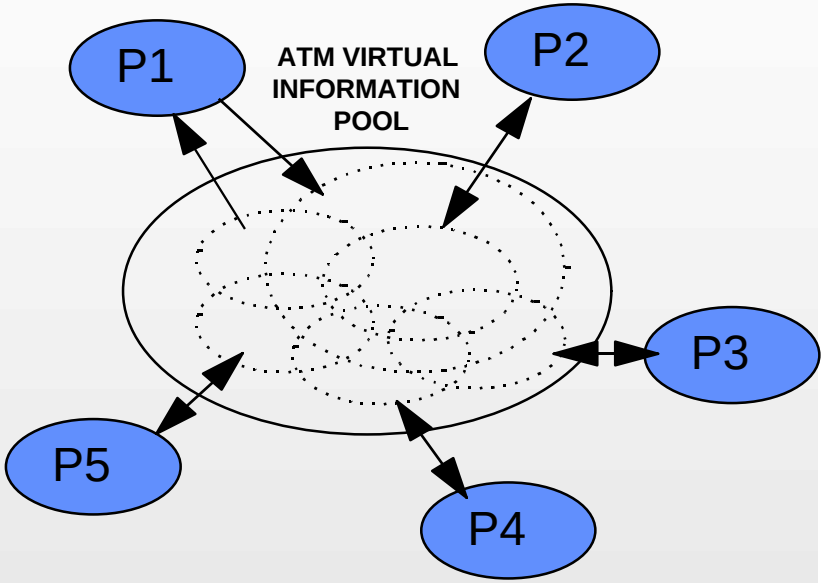
Traditional & Advanced Forms of Integration



Information exchange model



Virtual information pool model

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Examples of Early Contributions/Opportunities
for Improving the European Information Architecture

- Systems
  - CRCO (Central Route Charges Office)
  - IFPS (initial Integrated Flight Plan Processing System)
  - CFMU (Central Flow Management Office)
  - ASD (Air Situation Display)
  - CODA (Central Office of Delay Analysis)
  - ARTAS (Advanced suRveillance Tracker and Server)
  - EAD (European AIS Database)
  - eFDPS (European Flight Data Processing System)
  - ACCS (Air Command and Control System)
- Standards
  - ASTERIX (All-purpose Structured EUROCONTROL Radar Information Exchange)
  - ADEXP (ATS Data Exchange Protocol Format)
  - OLDI (On-Line Data Interchange)

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Summary of Current Status

- We know that vast amounts of information will be circulating in the future ATM system
- The realisation of Europe's future ATM concept is dependent on improved information sharing:
  Access to information where & when you need it will be vital
- The high level principles of SystemWide Information Management (SWIM) will be addressed in upcoming editions of the ATM 2000+ Strategy and the EATMS Operational Concept Document
- Detailed SWIM concepts & strategy will need to be worked out in the near future
- Meanwhile, a number of common development & implementation projects are starting to streamline the European information architecture
- The EUROCONTROL Agency is undertaking Information Architecture studies

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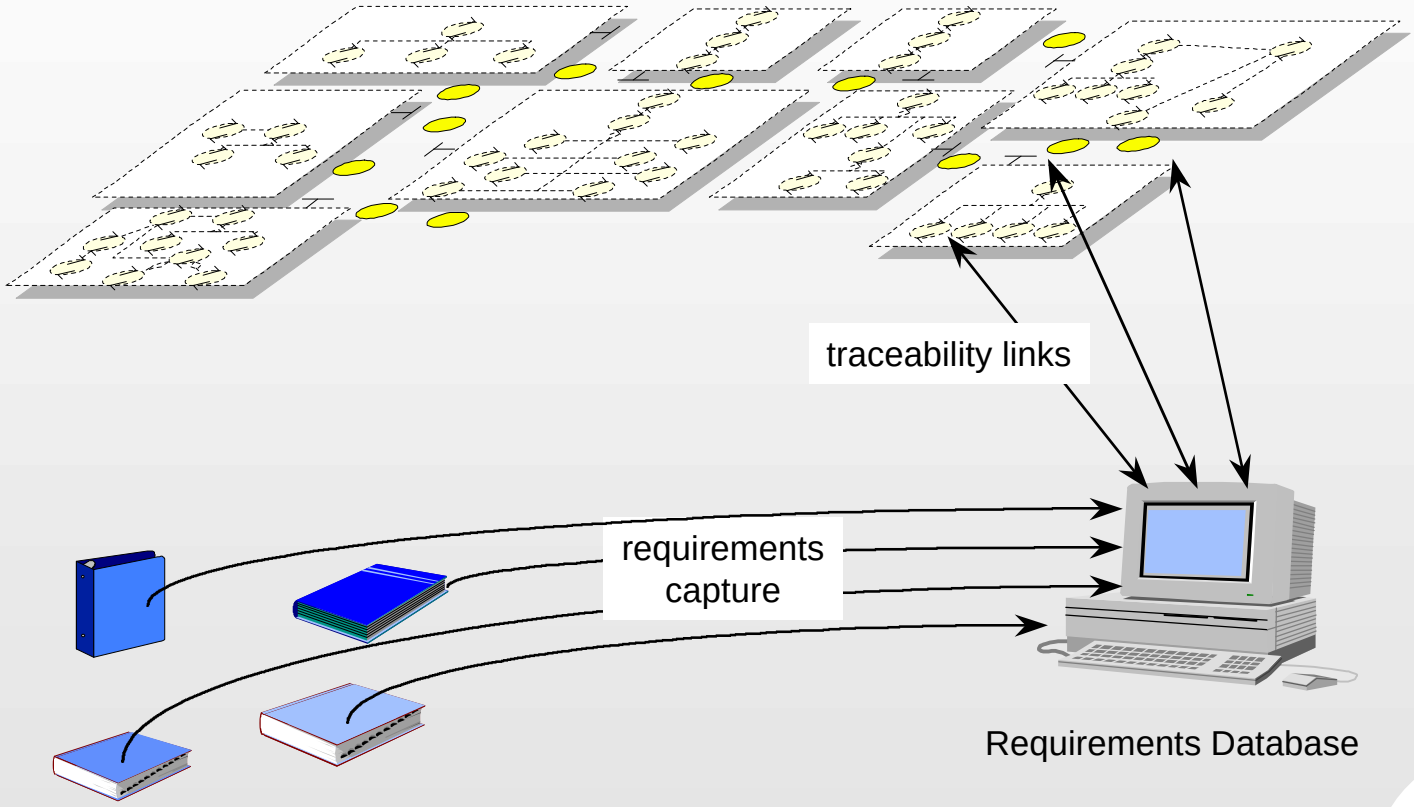
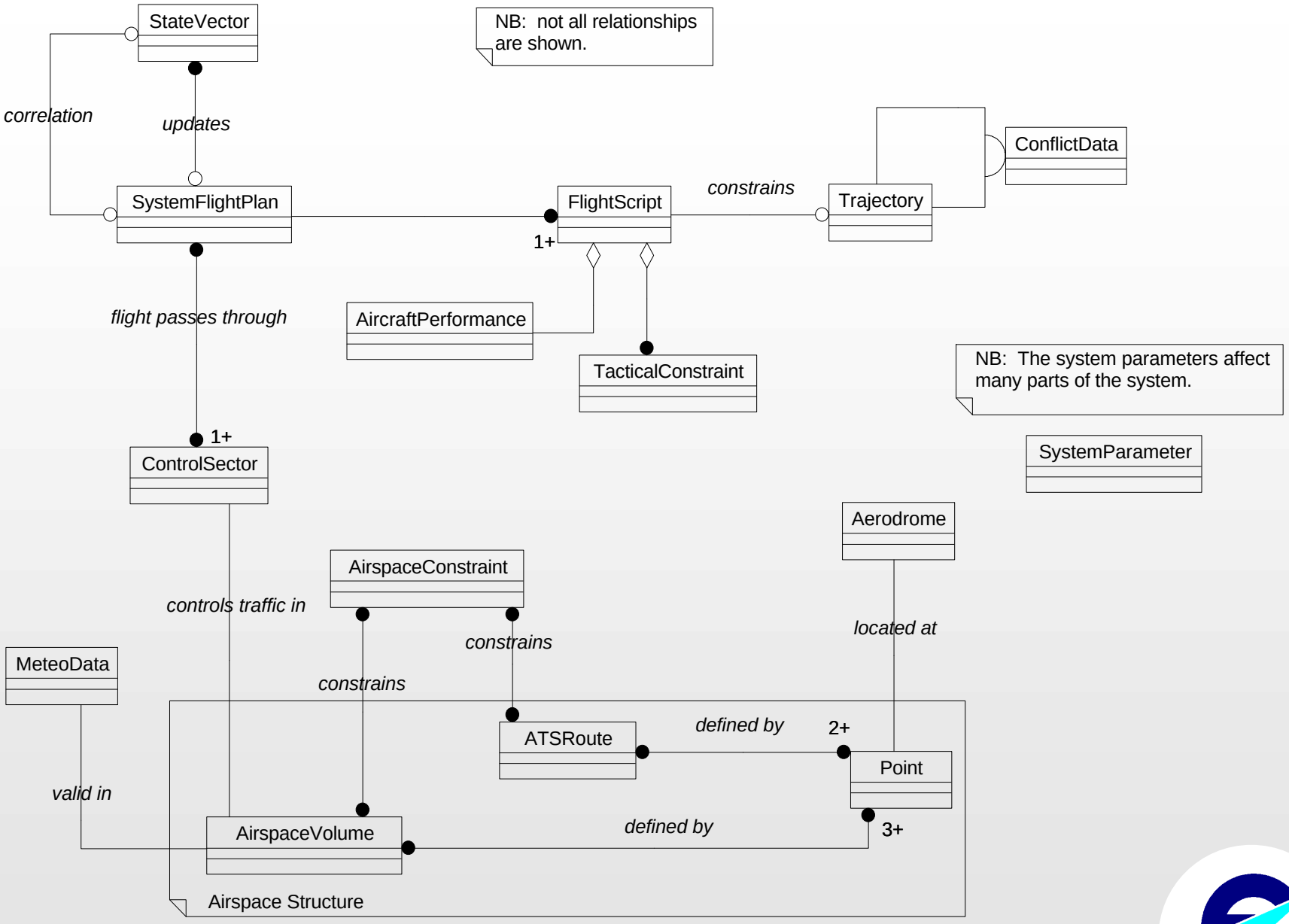
Identifying ATM Information Objects





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Multi-Viewpoint Architecture Modelling

Eurocontrol: ISO RM-ODP

(Reference Model for Open Distributed Processing)

http://www.iso.ch:8000/RM-ODP/

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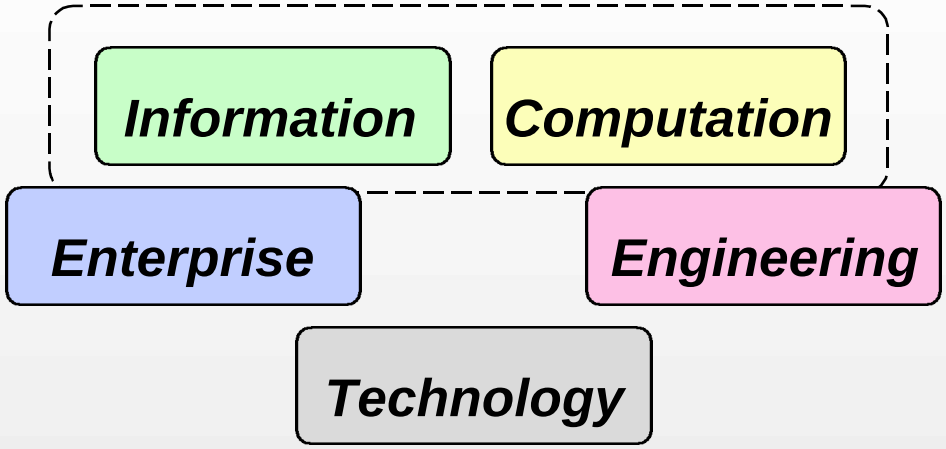
Multi-Viewpoint Architecture Modelling



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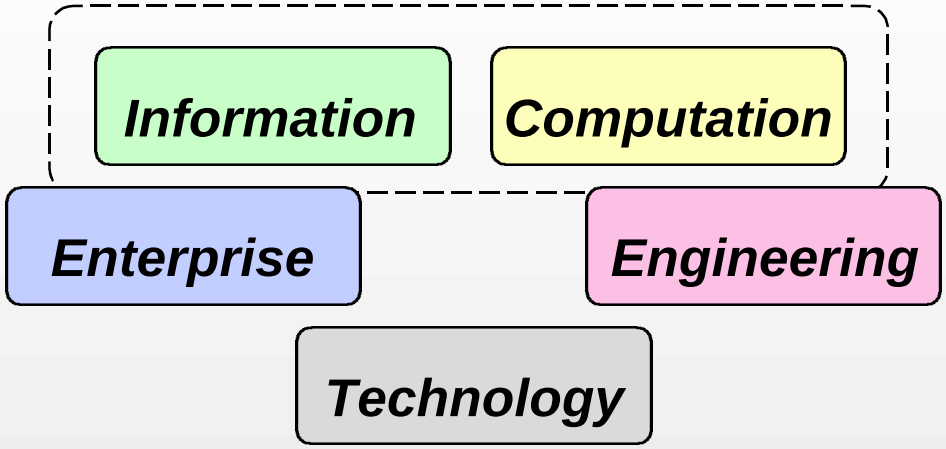
Multi-Viewpoint Architecture Modelling



FAA:EAP

(Enterprise Architecture Planning)

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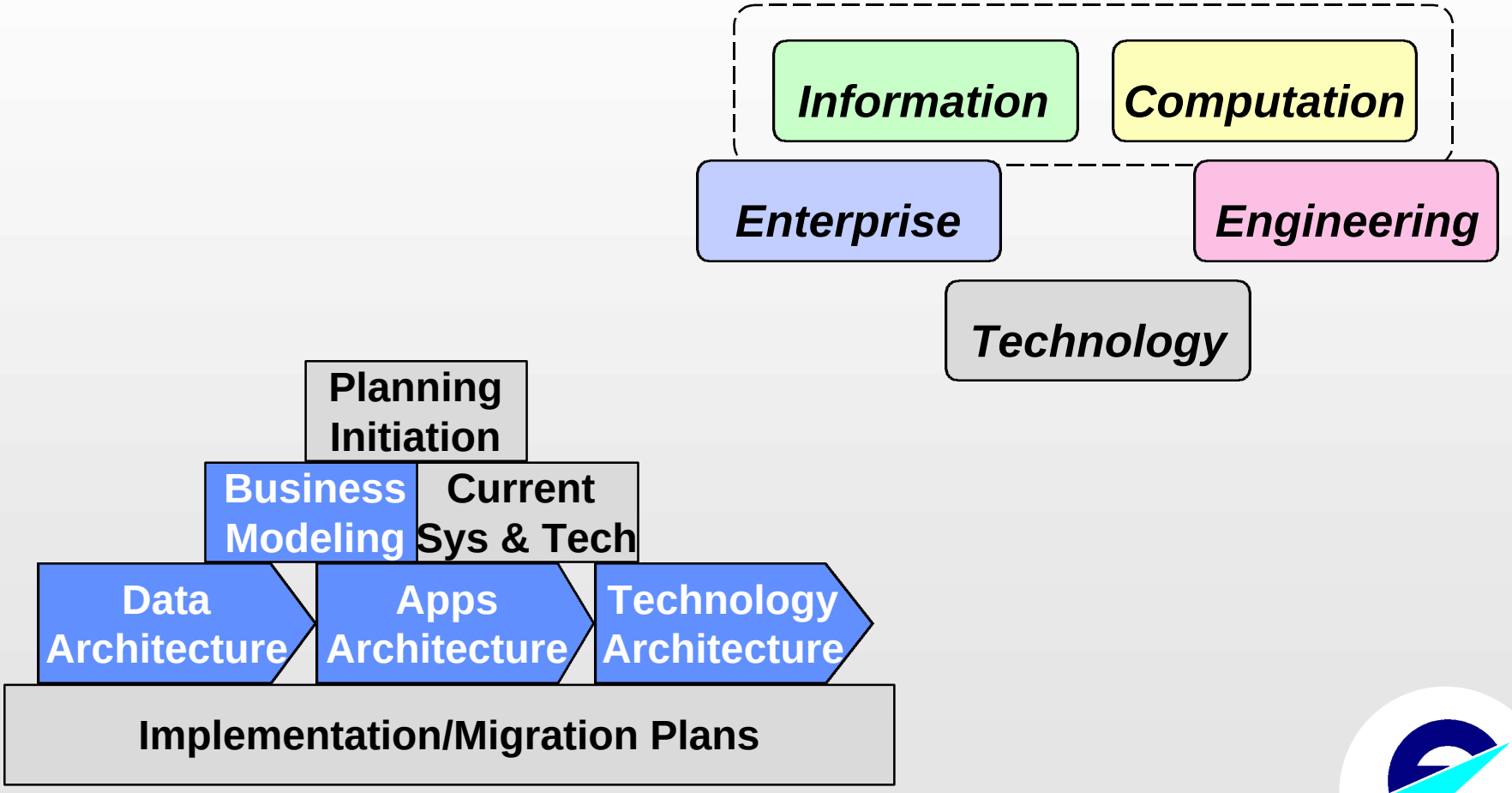

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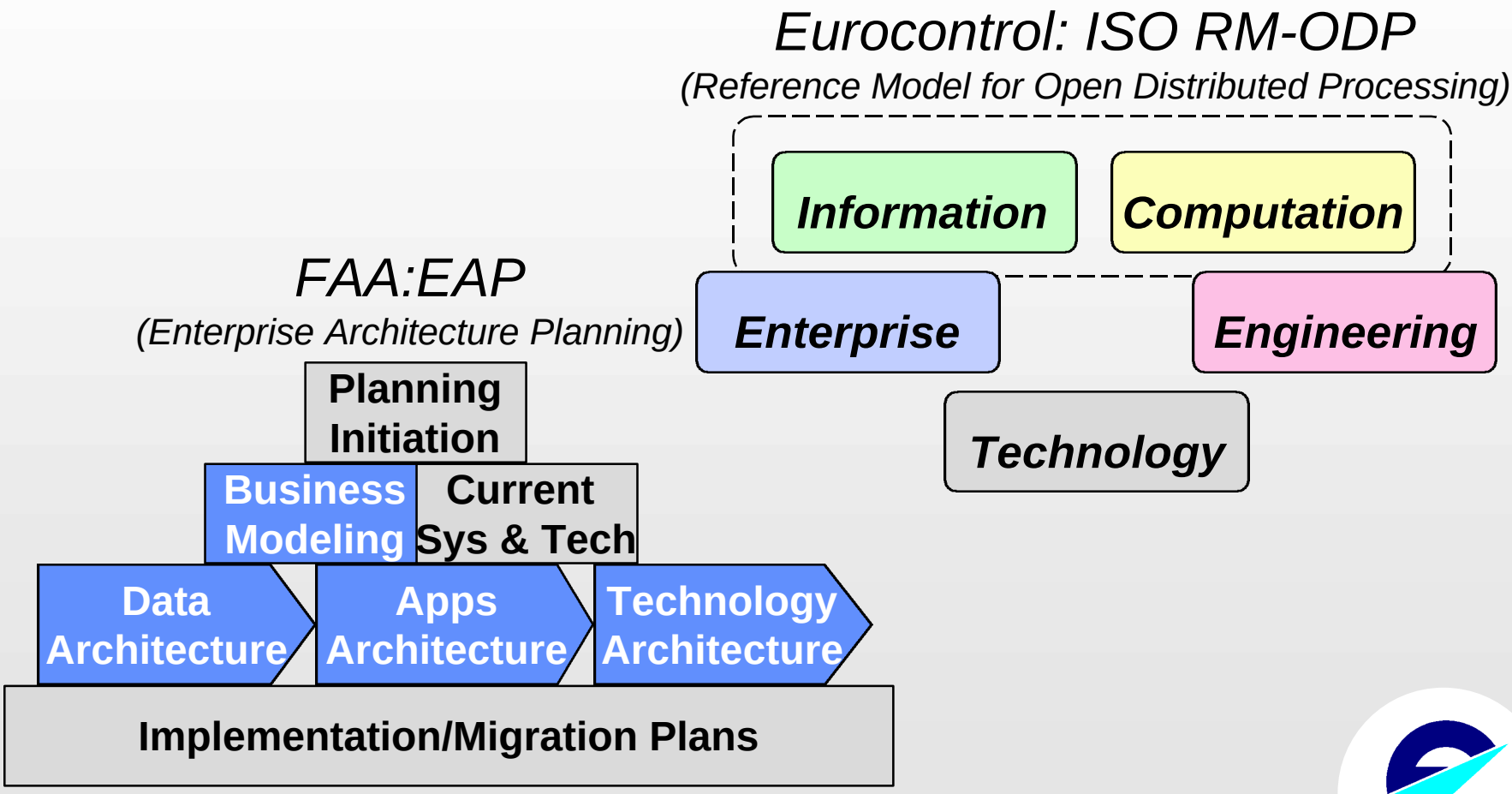
Multi-Viewpoint Architecture Modelling



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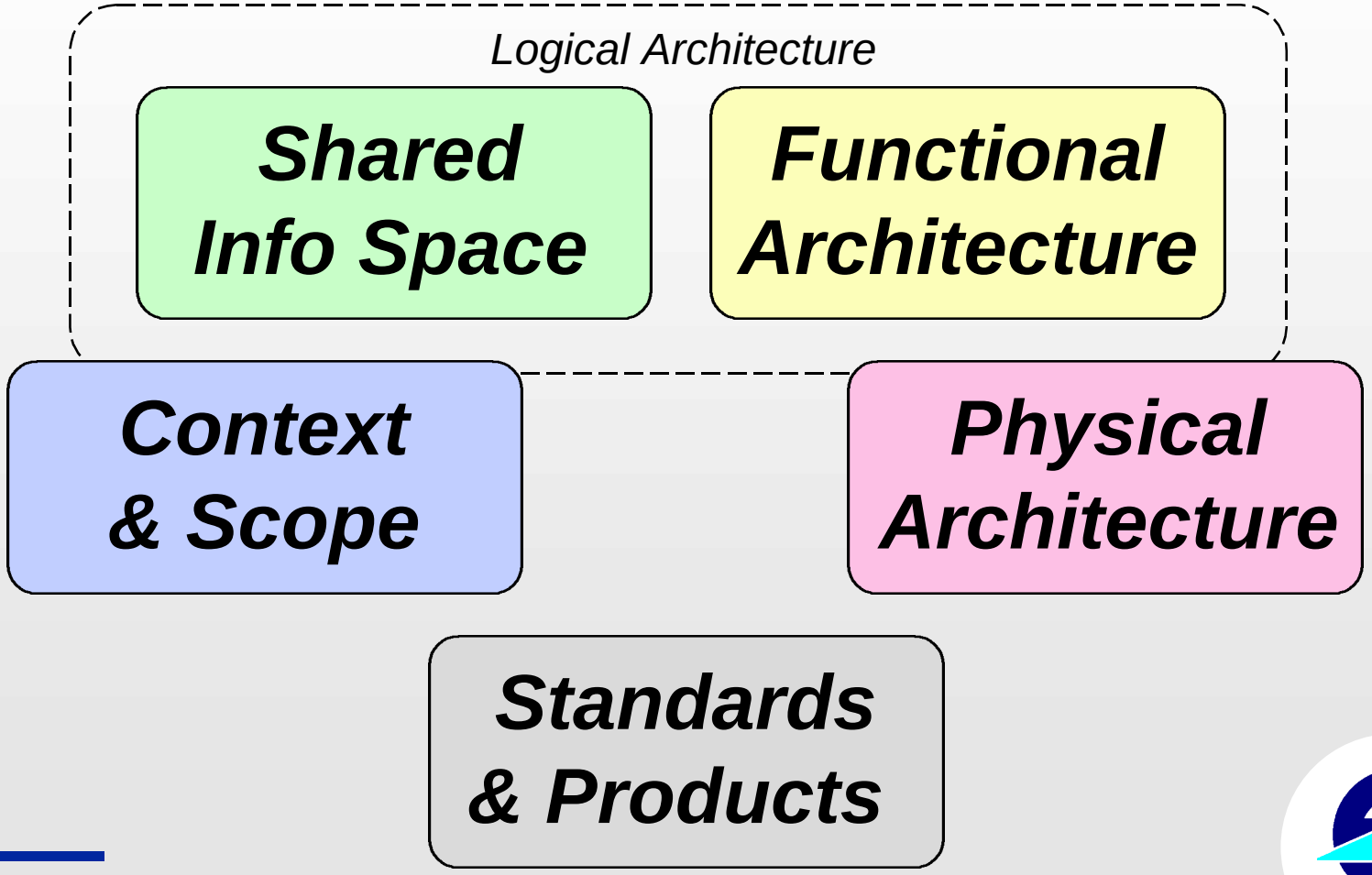
A Pragmatic Approach to RM-ODP



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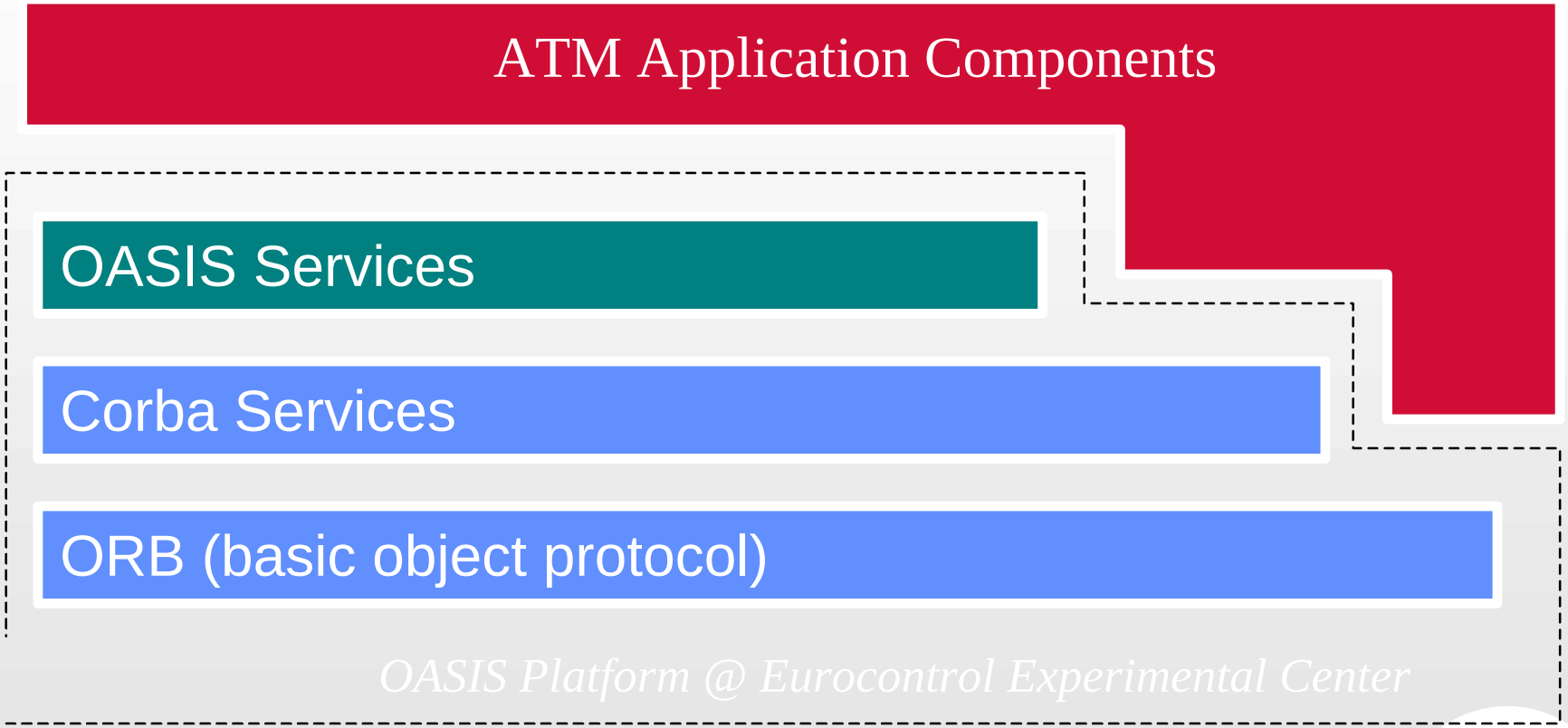
A Corba-Based Platform



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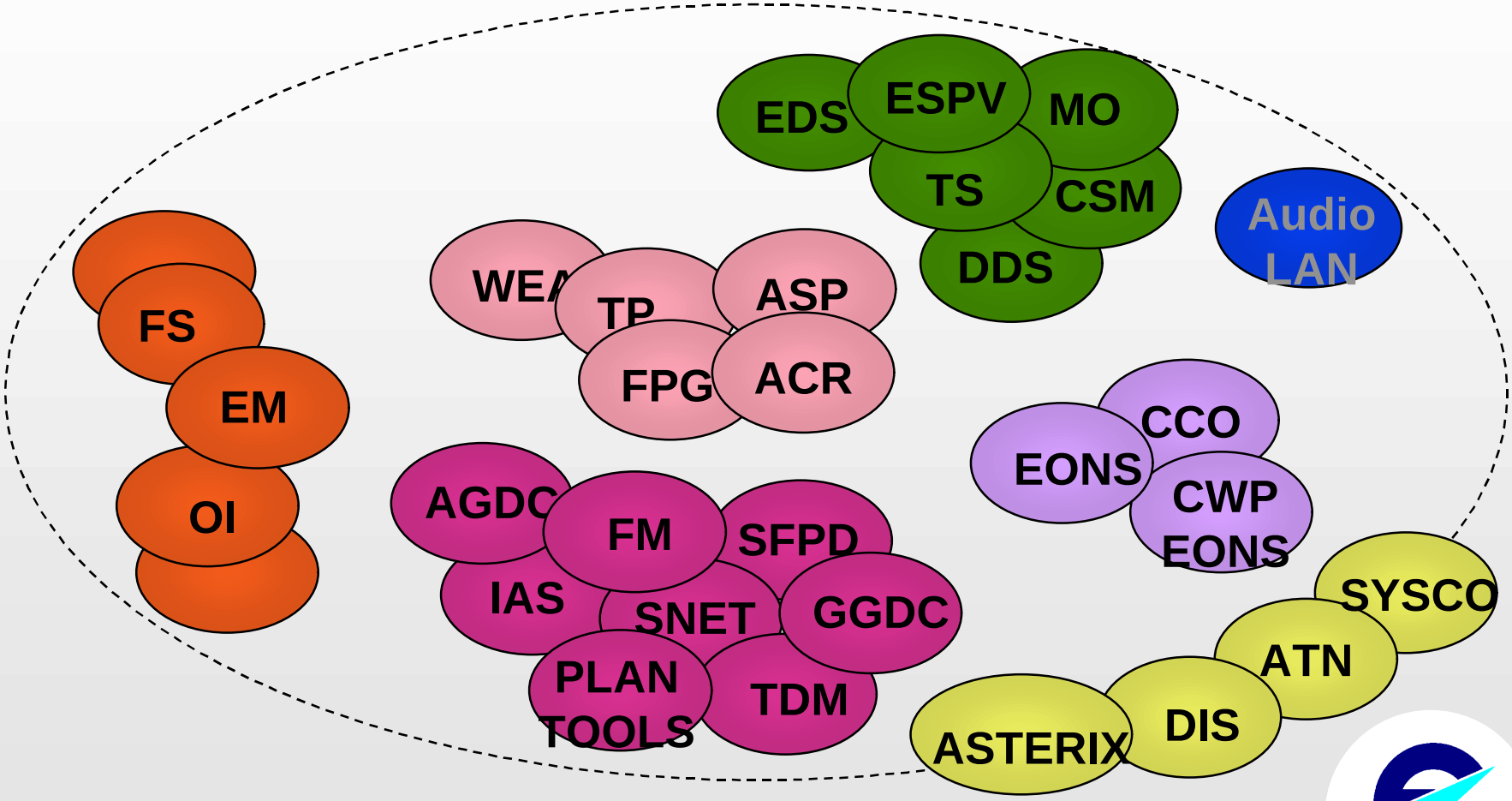
Towards Plug-and-Play



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